SOV/126-6-4-27/34

AUTHOR: Kobelev, L.Ya.

TITLE: On the Problem of Description of an Electron-Ion Plas
            (K voprosu opisaniya elektronno-ionnoy plazmy)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6,
            Nr 4, pp 754-756 (USSR)

ABSTRACT: Classical and quantum-mechanical kinetic equations of
            an electron-ion plasma (Ref.1,2) do not allow for the
            virtual processes of interactions of electrons and ions
            with the self-consistent field of the plasma. When
            these virtual processes are taken into account a system
            of interacting particles is described in the self-
            consistent field approximation by means of Schwinger's
            equations for the non-relativistic Green's function
            (Ref.3). The author derives the Green's function for
            a system consisting of two types of interacting
            particles, e.g. electrons and ions. He also deduces a
            generalisation of the dispersion relation for an
            electron-ion plasma which allows for the virtual
            interactions of electrons and ions with the

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SOV/126-5-4-27/34

On the Problem of Description of an Electron-Ion Plasma

self-consistent field of the plasma. The paper is entirely theoretical. Acknowledgments are made to Corresponding Member of the Ac.Sc. USSR S.V.Vonsovskiy for his advice. There are 6 references of which 5 are Soviet and 1 English.

ASSOCIATION: Ural'skiy Gosudarstvennyy Universitet imeni A.M.Gor'kogo (Ural State University imeni A.M.Gor'kiy)

SUBMITTED: 15th April 1957.

AUTHOR: Kobelev, L. Ya.   SOV/126-6-5-35/43

TITLE: On Correlational Corrections to the Hartree-Fock
         Equation (O korrelyatsionnykh popravkakh k uravneniyu
         Khartri-Foka)

ABSTRACT: Behaviour of a system of interacting particles,
         described in terms of the self-consistent field approxi-
         mation, is determined by the Hartree-Fock equation for
         a wave-function or a density matrix of a particle in
         the self-consistent field of all the other particles.
         Processes of virtual interaction (absorption and emission
         of virtual quanta), as well as changes in exchange forces
         due to polarisation of the self-consistent field, are
         neglected. The present paper introduces correlational
         corrections into the Hartree-Fock equations which allow
         for the effects of polarisation and virtual processes.
         These corrections are calculated on the assumption that
         the polarisation and virtual processes are small
         perturbations. The perturbation theory method is used
         in these calculations.   An equation for the density
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SOV/126-6-5-35/43

On Correlational Corrections to the Hartree-Fock Equation

matrix is derived (Eq 12) in which the correlational corrections are given by the last term. The energy of an electron in the self-consistent field, with small correlational corrections (for polarisation and virtual processes), is also calculated (Eq 13). Acknowledgments are made to Professor S. V. Vonsovskiy for his advice. There are 5 references, 3 of which are Soviet and 2 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A. M. Gor'kogo (Ural State University imeni A.M.Gor'kiy)

SUBMITTED: May 6, 1957

Card 2/2

SOV/126-6-5-38/43

AUTHOR: Kobelev, L. Ya.

TITLE: On the Effect of Correlation on the Frequency of Plasma Oscillations (O vliyanii korrelyatsii na chastotu plazmennykh kolebaniy)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 5, pp 948-951 (USSR)

ABSTRACT: The effect of the exchange correlation on the frequency of plasma oscillations in a system of interacting particles was discussed by Silin (Ref 1), Yeleonskiy and Zyryanov (Ref 2). Correlation due to interaction of particles with the "vacuum" of the system is dealt with in the present paper. It is assumed that the correlation energy is small compared with the energy of fundamental excitations. The correlation correction to the dispersion relation of the system is calculated by means of the Green's functions, using the technique first described by Bonch-Bruyevich (Ref 3). The author starts with the dispersion relation for fundamental excitations of a system of interacting particles given, in the momentum representation and with the magnetic interaction neglected, in

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On the Effect of Correlation on the Frequency of Plasma
Oscillations

the form

$$p^2 - \frac{ie^2}{(2\pi)^4} \int G_+^0(p_1) \Gamma_0^0(p; p_1 p_1 - p)\, G_+^0(p_1 - p)\, dp_1 = 0 \tag{1}$$

where G_+^0 is the approximate expression for the Green's
function of a particle corresponding to, for example,
a particle distribution with uniform density;
Γ_0^0 is the vertex part expressed in terms of G_+^0;
$h/2\pi = c = 1$. When the correlation energy is small, the
vertex part can be written approximately as:

$$\Gamma_0^0 = 1 - \frac{ie^2}{(2\pi)^4} \int G_+^0(p_1 - p_2) G_+^0(p_1 - p_2 - p) D_{0+}^0(p_2)\, dp_2 \tag{2}$$

where D_{0+}^0 is the solution of the equation

$$- \square D_{0+}^0 = 1 + eP_0 D_{0+} \;.$$

Card2/3 Using the form of Γ_0^0 given by Eq (2), the author

On the Effect of Correlation on the Frequency of Plasma SOV/126-6-5-38/43
Oscillations

      calculates the dispersion relation (Eq 6) which includes
a correction for the correlation due to interactions of
the particles with the "vacuum". Eq (6) is used to
derive the dispersion relations for a system of bosons
(Eq 7) and a degenerate Fermi gas (Eq 10). In the second
half of the paper the vertex part Γ_0^0 of Eq (1) is used
in its general form and a new dispersion relation (Eq 12)
is obtained for the same conditions as Eq (6). Eq (12)
is then used to derive the dispersion relations for a
system of bosons (Eq 13) and a system of fermions (Eq 14).
There are 5 Soviet references.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni
    A. M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: October 28, 1957

Card 3/3

24.6000

65711
SOV/139-59-2-10/30

AUTHOR: Kobelev, L.Ya.

TITLE: On the Calculation of the Vertex Part of a System of
             Interacting Particles

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959,
             Nr 2, pp 60-68 (USSR)

ABSTRACT: A highly theoretical paper concerned with the derivation
             of expressions for the vertex part in the theory of
             systems of nonrelativistic interacting particles. Single
             particle Green functions are used (cf Edwards, Ref 1).
             Approximate expressions are derived for the vertex part
             using the methods put forward by Ward (Ref 2) and
             Landau et al (Ref 3). It is shown that the vertex parts
             for systems of bosons and fermions, calculated under
             various approximations taking into account an infinite
             number of Feynman diagrams, strongly depend on the momenta
             and energies of the particles. It follows that for systems
             of strongly interacting particles with $T = 0$, the
             approximation $T = 1$ is very rough. The self-consistent
             Hartree-Fock field approximation in the case of systems
             with large density, strong interaction and $T = 0$ may not
             describe some important properties of the system. For

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10.4000

66596

AUTHOR: Kobelev, L.Ya.

SOV/139-59-3-4/29

TITLE: On the Spectrum of Excitations of an Interacting Boson
System

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
1959, Nr 3, pp 23-30 (USSR)

ABSTRACT: Behaviour of a system of bosons was studied by many
workers (Refs 1-5). Qualitative explanations have been
advanced for the most important properties of the spectrum
of fundamental excitations of the superfluid state such as
the presence of two branches of the spectrum ("phonon" and
"roton" branches) and non-monotonic dependence of the
phonon energy on momentum. Dependence of the phonon energy
on the wave vector, obtained by Brueckner and Sawada
(Ref 4) does not, however, agree with the experimental form
of this dependence (Ref 2). Moreover, Brueckner and
Sawada's theory fails to predict two velocities of sound
in liquid helium, and the main results of Brueckner—Sawada
and Lee—Huang—Yang's theories (Refs 4,5) can be deduced
from Bogolyubov's work (Ref 2) using hard-sphere inter-
action. It seems unlikely that the strong interaction of
particles with the vacuum of the system, which is important

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66396

SOV/139-59-3-4/29

On the Spectrum of Excitations of an Interacting Boson System

at low temperatures, leads only to small corrections to the self-consistent field method results. The author therefore sets out to study a system of bosons using mathematical methods which would allow more fully for the interaction of particles with the vacuum of the system and would lead to a relationship between the two velocities of sound in liquid helium. The author discusses the phonon branch of the spectrum of fundamental excitations of a boson system at low temperatures using the Green's functions method. The system is described fully by means of the Green's functions of the particles and of the electromagnetic field. The Green's functions are deduced from equations with variational derivatives, similar to the well-known equations of Schwinger's quantum field theory (Ref 7). The dispersion relations, between the energy of fundamental excitations and momentum, are given by the poles of the Green's functions of the particles and of the interaction field. For the hard-sphere interaction, the author shows that two branches of acoustic vibrations are possible, each with a different sound velocity. The paper is entirely theoretical. Acknowledgement is made to Corresponding

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24(3), 24(4)

AUTHORS: Kobelev, L. Ya. and Sokolov, A. V.

TITLE: On Magneto-Optical Phenomena in Ferromagnetic Binary
            Alloys in the Far Infrared Frequency Region
            (O magnetoopticheskikh yavleniyakh v ferromagnitnykh
            binarnykh splavakh v oblasti dalekikh infrakrasnykh
            chastot)

ABSTRACT: The dependence of the Kerr and Faraday constants on the
            alloy composition and the degree of long range order
            in the above frequency range is calculated. The
            calculation was based on the theory of binary alloys
            given in Ref 2. The two constants are given by:

$$K_k \sim \frac{\sqrt{\nu}^{1/2}\,\omega}{(\nu^2 - \nu_0^2)\sqrt{A}\,\sqrt{c(1-c) - \frac{\omega}{1-\omega}(q-c)^2\eta^2 + B\gamma^2}}$$

$$K_f \sim \frac{\nu^{3/2}\sqrt{A}}{(\nu^2 - \nu_0^2)}\left[c(1-c) - \frac{\omega}{1-\omega}(q-c)^2\eta^2 + B\gamma^2\right]^{1/2} \tag{8}$$

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SOV/126-7-2-21/39

On Magneto-Optical Phenomena in Ferromagnetic Binary Alloys in the Far Infrared Frequency Region

where V_0 is the effective frequency corresponding to the spin-orbit interaction, V is the frequency of the incident radiation, η is the degree of long range order, c describes the composition of the alloy, A is a constant independent of c and the degree of long range order and q=1 for c $\geqslant$ 1/2 and q=2c for c $<$ 1/2; B is a constant, y is the spontaneous magnetisation of d-electrons which is a function of c and η, and ω is the matrix element of the operator representing the magnetic spin-orbit electron interaction energy. Professor M. M. Noskov and A. N. Levkov are thanked for the discussion of the results. There are 3 references, two of which are Soviet, 1 English.

ASSOCIATIONS: Institut fiziki metallov AN SSSR (Institute of Metal Physics, Ac.Sc., USSR) and Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: July 2, 1957

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S/139/60/000/004/042/044/XX
E031/E413

AUTHOR: Kobelev, L.Ya.

TITLE: On the Application of Repeated Integrals Along the Trajectory in the Theory of Green's function for a System of Non-Relativistic Particles

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, No.4, pp.206-216

TEXT: Green's function for a system of non-relativistic inter-acting particles is written with the aid of repeated integrals along the trajectory in a functional space and calculated using the mathematical apparatus of integration in functional spaces. In order to use the expression (1.1) for Green's function at temperature $T = 0$, it is necessary to solve the equation

$$\left[i \frac{\partial}{\partial t} - H(\nabla, A_\mu(x)) \right] G'(xy/A) = \delta(x - y) \qquad (1.3)$$

It will be assumed that the Green's function $D_{\mu\nu}$ in (1.1) is known. Fok's method is used to solve Eq.(1.3). The solution is expressed by equation (2.7). For a system of particles it is more convenient to use retarding and advancing Green's functions,

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S/139/60/000/004/042/044/XX
E031/E413

On the Application of Repeated Integrals Along the Trajectory in the Theory of Green's Function for a System of Non-Relativistic Particles

G_r and G_A which are obtained by integrating Eq.(2.7) with respect to p^o and in solving Eq.(2.6) choosing a contour of integration with respect to p^o corresponding to conditions on $V_{1\,ret}$ and $V_{1\,adv}$ similar to those on G_{ret} and G_{adv}. To find a solution of Eq.(2.6) suitable for determining the functions G_r and G_A for a system of interacting particles, the boundary condition $V_1(\vec{y})\,\Big|_{q=0}= \delta(\vec{x} - \vec{y})$ is not sufficient, since the solution of Eq.(2.6) must satisfy additional boundary conditions imposed by the choice of the contour of integration. The solution of Eq.(2.6) in the form of repeated integrals depends on the choice of the correct measure in the functional space. When this solution is obtained an expression can be given for G_r, Eq.(3.8), which is a particular solution of the Cauchy problem (1.3). Substituting this Green's function in (1.1) and carrying out the functional integration with respect to the external fields various Green's functions are obtained for $\mu = 0,1,2,3$. These are quoted (Eqs. (40) to (43)). By way of a first example the perturbation
Card 2/3

AUTHOR: Kobelev, L.Ya.

TITLE: On the Calculation of the Response Functions for a
            System of Interconnecting Particles

TEXT.   The aim of the present note is to derive corrections to the
expressions obtained by Kubo for the response functions, the
corrections being due to the interactions between the particles. 19
The discussion is concerned with a system of interacting Fermi
particles and it is shown that the correct response function is
given by

$$\Phi^r_{\alpha\beta}(x - y) = G^r_{\alpha\beta}(x - y) + \int G^r_{\alpha\gamma}(x - y_1)H_{\gamma 0}(y_1)\Phi^r_{\beta}(y_1 - y)dy_1 +$$

$$+ \int G^r_{\alpha\gamma}(x - y_1)M_{\gamma 0}(x,y_1)V^0_0(y_1 - y')\Phi_{\beta}(y' - y)dy'dy_1 +$$

$$+ G^r_{\alpha\gamma}(x - y) \frac{\partial}{\partial h_{\beta}}\left[\vec{h}(y) \times \vec{M}_0(x,y)\right]_{\gamma}\Bigg|_{h_{\beta} = 0} \tag{14}$$

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S/126/60/010/002/025/028/XX
E032/E414

On the Calculation of the Response Functions for a System of
Interconnecting Particles

where the first term is identical with the Kubo function, the
second term is proportional to the Pauli (paramagnetic) field of
the system due to the interaction between the particles, the third
and fourth terms are due to interference effects between the
particle density function and the natural magnetic field or
magnetic moment of the system.   In this expression the diamagnetic
terms are neglected although it is said that they can easily be
introduced.   There are 2 references: 1 Japanese and 1 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kogo
             (Ural State University imeni A.M.Gor'kiy)

SUBMITTED: March 25, 1960

Card 2/2

KOBELEV, L.Ya.

Elementary excitation spectrum in a system of interacting
magnetized Fermi particles. Izv.vys.ucheb.zav.; fiz. no.5:125-133
'61.   (MIRA 14:10)

1. Ural'skiy gosudarstvennyy universitet imeni A.M.Gor'kogo.
    (Potential, Theory of)   (Quantum theory)

VONSOVSKIY, S.V.; KOBELEV, L. Ya.

Quantum theory of the ferromagnetism of collective electrons.
Fiz. met.imetalloved. 11 no.6:820-824 Je '61.   (MIRA 14:6)

1. Institut fisiki metallov AN SSSR i Ural'skiy gosudarstvennyy
universitet imeni A.M. Gor'kogo.
(Electrons)
(Ferromagnetism)

S/126/61/012/006/003/023
E032/E514

AUTHORS: Vonsovskiy, S.V. and Kobelev, L.Ya.

TITLE: On the energy of magnetic interaction between two
systems of interacting electrons

PERIODICAL: Fizika metallov i metallovedeniye, v.12, no.6, 1961,
814-825

TEXT: In the s-d-model of transition metals put forward by
the first of the present authors (Ref.1: ZhETF, 1946, 16, 981)
it is assumed that the magnetic properties of a crystal containing
atoms of transition elements are almost entirely determined by
the sub-system of "internal" electrons (d- and f-electrons),
which are looked upon as a set of localized spin particles. The
outer particles (s- and p-electrons) contribute mainly to the
electrical conductivity and for them it is the Fermi energy
which is the significant quantity. In the present paper the
authors discuss the interaction of two sets of electrons with the
hope that this might throw some light on the theoretical
foundations of the s-d-model. The paper starts with the formu-
lation of the general equations for a system of Fermi quasi-

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On the energy of magnetic ...   S/126/61/012/006/003/023
                                    E032/E514

particles in a crystal consisting of two sub-systems.   The
single-particle excitations of these sub-systems are described
by means of the operator Spinor functions

$$\varphi^{x\eta}(x) \quad \begin{pmatrix} \varphi_1^{x\eta} \\ \psi_2^{x\eta} \end{pmatrix} \quad \text{and} \quad \varphi^{Y}(x) \quad \begin{pmatrix} \psi_1^{\eta} \\ \varphi_2^{\eta} \end{pmatrix}$$

which represent the creation and annihilation of elementary
excitations (e.g. conduction electrons, holes etc.).   Use is
made of the single-particle Green functions as originally
described by I. Schwinger (Ref.3 Proc. Nat. Acad. Sci. 1951.
37, 452).   The derived set of equations for the single-particle
temperature Green function is then used to determine the spectrum
of elementary excitations and the magnetization of the system.
The analysis is then stabilized to the case of ferromagnetic
systems and terms responsible for the magnetic anisotropy of the
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On the energy of magnetic ...   S/126/61/012/006/003/023
                                       E032/E514

system and the contribution due to the mean electrostatic energy
are neglected. The energy spectrum is then examined in detail and
it is shown how the magnetization-dependent terms vary when one
or both of the sub-systems may be looked upon as collective or
localized. There are 12 references: 6 Soviet-bloc and 6 non-
Soviet-bloc. The English-language references read as follows:
Ref.5: Schwinger I. Phil.Mag., 1953, 44, 1171; Ref.9: Stoner E.
Proc.Roy.Soc., 1938, A165, 372, Ref.10: Kasuia T. Progr.Theor.
Phys., 1956, 16, 45; Ref.12: Marschall W. Phys. Rev., 1960, 118,
1519.

ASSOCIATIONS: Institut fiziki metallov AN SSSR (Institute of
                Physics of Metals AS USSR) and
                Ural'skiy gosuniversitet im. A. M. Gor'kogo
                (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: July 20, 1961

Card 3/3

KOBELEV, L.Ya.

Graphic representation for the density function of the magneti-
sation of a particle system. Izv.vys.ucheb.zav.; fiz. no.3:155-
163 '61.   (MIRA 14:8)

1. Ural'skiy gosudarstvennyy universitet im. A.M.Gor'kogo.
         (Quantum statistics)   (Magnetic fields)

24.2200

AUTHORS: Kobelev, L.Ya., Filippov, B.N., and Khodenkov, G.Ye.

TITLE: On the effect of the spin-orbit interaction of electrons on the energy of a spin wave

TEXT: The spin-spin and spin-orbit interactions of the electrons in a ferromagnetic are known to lead to a change in the spin-wave energy. This change is of interest in connection with the theory of the constants of anisotropy of ferromagnetics. In order to describe the increase in the energy due to the spin-orbit effect, the authors use the Schwinger method involving single-particle Green functions. The dynamical Schwinger principle is used to set up the equations for the single-particle temperature Green functions including spin-orbit terms. General expressions are then derived for the energy of elementary excitations and for the change in the spin-wave energy due to the spin effects for $T > 10\ ^{o}K$ and $T < 10\ ^{o}K$.

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On the effect of the spin-orbit ... S/139/62/000/001/027/032
                                    E032/E114

ASSOCIATION: Ural'skiy gosuniversitet imeni A.M. Gor'kogo
            (Ural State University imeni A.M. Gor'kiy)

SUBMITTED: June 24, 1960

Card 2/2

KOBELEV, L.Ya.; FILIPPOV, B.N.; KHODENKOV, O.Ye.

Effect of the spin-orbital interaction of electrons on the
energy of the spin wave. Izv.vys.ucheb.zav.;fiz. no.1:158-161
'62.   (MIRA 15:6)

1. Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
                        (Electrons)

L 13830-63   EPR/EWP(j)/EPF(c)/EWT(1)/EWT(m)/FCC(w)/BDS   AFFTC/ASD
5-4, Fr-4/Fr-4   RM/WW/IJP(C)
ACCESSION NR: AP3003560   S/0020/63/151/002/0373/0376

AUTHOR: Kobelev, L. Ya.   72

TITLE: Quantum theory of fast low-temperature polymerization

SOURCE: AN SSSR, Doklady, v. 151, no. 2, 1963, 373-376

TOPIC TAGS: quantum theory, low-temperature polymerization, electron, proton, exciton

ABSTRACT: One of the variants of quantum theory of fast low-temperature polymerization conditioned by collective interaction of quasi-particles (electrons, protons, excitons, etc.) responsible for the polymerization is examined. The most important part of the theory is the explanation of the inactive characteristic of the process and the possibility of predicting several physical phenomena (polymerizing waves, resonance phenomena, anomalies in kinetics phenomena, etc.), which allow the verification of the theory. The paper was presented by Academician V. A. Kargin on 8 April 1963. Orig. art has: no graphic material.

ASSOCIATION: Ural'skiy gosudarstvenny*y universitet im. A. M. Gor'kogo (Ural State University)

Card 1/2

L 9212-66 EWT(1)/EWA(j)/EWT(m)/EWP(j)/T/EWA(b)-2   IJP(c)   WW/RM

ACC NR: AR6000119   SOURCE CODE: UR/0058/65/000/008/B021/B021

56

B

SOURCE: Ref. zh. Fizika, Abs. 8E148

AUTHOR: Kobelev, L. Ya.

ORG: none

TITLE: Effect of strong magnetic fields on the processes of formation of super-molecular structures in synthetic and biological polymers

CITED SOURCE: Sb. Fiz. magnitn. yavleniy. Sverdlovsk, 1964, 3-22

TOPIC TAGS: polymer physical chemistry, wave function, polymer structure, magnetic field

TRANSLATION: A theory is constructed for the formation of supermolecular structures such as "bundles," "multispirals," etc., from simpler structures. The formation of the structures is described in this case as a phase transition in a system of particles responsible for their formation, and the homopolar forces, which are the consequences of the overlap of the wave functions of these particles, which are in identical states, play the principal role. One of the consequences of the theory is the presence in the supermolecular structures of collective energy excitations of the structural waves, which can propagate through the supermolecular structure. A qualitative investigation is made of the possible influence of strong magnetic fields ($\sim10^5$ oe) on the processes of formation of supermolecular structures.

SUB CODE: 20, 07

Card 1/1

2

...terials responsible for rapid low-temperature polymerization, i.e. increases...

OTHER :   OC2   PRA

KOBELEV, M.M.

Diagnostic significance of biopsy in cancer. Klin.med., Moskva
29 no.1:85 Jan 51.   (CLML 20:5)

1. Of the Propedeutic Therapeutic Clinic (Director --Prof.I.I.
Tsvetkov), Saratov Medical Institute, Saratov.

KOBELEV, M.M.

Some problems concerning the mortality rate in rheumatic fever.
Vop. revm. 2 no.2:75-78 Ap-Je'62   (MIRA 17:3)

1. Iz Pskovskoy oblastnoy bol'nitsy No.2 v Velikikh Lukakh
(glavnyy vrach L.F.Martynov).

3(5) ·

SOV/21-59-1-21/26

AUTHORS: Kobelev, M.V. and Sakhatskiy, I.I.

TITLE: On the Weathering Crust of the Dubovskiye and Anatolian
               Granites (of the North-East Azov Seashore) (O kore
               vyvetrivaniya Dubovskikh i Anatoliyekikh granitov
               (Severo-vostochnoye Priazov'ye)).

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1959, Nr 1
               pp 81-84 (USSR)

ABSTRACT: The chiefly detrital weathering crust of Tertiary age
               in the region of the Dubovskiye and Anatolian granites at
               the North-East Azov Seashore is described. The crust
               deepened in upper tertiary time, was destroyed, and
               the heavy minerals (ilmenite, zircon and monazite)
               were extruded and accumulated at a distance from the
               granite mass. The area, in addition to the South and
               North-West Azov shores, can be prospected for ilmenite.
               Recently, geological prospecting has discovered deposits

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SOV/21-59-1-21/26

On the Weathering Crust of the

of ilmenite embedded in the tertiary sandstone and hardened kaolin, in an area North of the Dubovskoy massif. There are 1 map and 7 Soviet references.

ASSOCIATION: Kirovskaya geologicheskaya eksped/tsiya (The Kirov Geological Expedition)

PRESENTED: August 12, 1958, by V.G. Bondarchuk, Member of AS UkrSSR

Card 2/2

KOBELEV, M.V. [Kobeliev, M.V.]

Karst on the southern edge of the Donets Basin. Dop.An URSR no.9:
1277-1280 '60.   (MIRA 13:10)

1. Predstavleno akademikom AN USSR V.G.Bondarchukom.
                    (Donets Basin--Karst)

BUTURLINOV, N.V.; PANOV, B.S.; KOBELEV, M.V.; KARPOV, G.F.

New data on Devonian igneous activity in the southwestern
margin of the Donets Basin. Dokl. AN SSSR 156 no. 4:817-
820 Je '64.   (MIRA 17:6)

1. Donetskiy politekhnicheskiy institut. Predstavleno akademikom
D.S.Korzhinskim.

VINOGRADOV, V.A. [Vynohradov, V.A.]; KOBELEV, M.V. [Kobeliev, M.V.]

New data on underground waters in the eastern part of the
Konsko-Yalynskaya trough. Geol.zhur. 22 no.2:94-97 '62.
(MIRA 15:4)

1. Kirovskaya ekspeditsiya.
(Donets Basin--Water, Underground)

MERKOV, B.P. (Moskva); GAUER, E.Ye. (Moskva); KOSHLEV, M.V.; SYCHEV, K.I. (Karaganda); UMAROV, M.U. (Moskva); SHUTLIV, V.A., kand.geol.-mineral.nauk

News, events, facts. Priroda no.12:99-109 D '62.

(MIRA 15:12)

1. Donetskaya geologicheskaya partiya, Novo-Troitskoye, Donetskaya obl. (for Koshlev). 2. TSentral'nyy sovet Vserossiyskogo obshchestva okhrany prirody, Moskva (for Shutliv).

(Science news)

KOBELEV, M.V.

Karst phenomena in the southern outskirts of the Donets Basin
and their age. Izv. AN SSSR. Ser.geog. no.1:73-77 Ja-F '63.
(MIRA 16:2)

1. Ministerstvo geologii i okhrany nedr SSSR.
(Donets Basin—Karst)

KOBELEV, N.; YEVSIKOV, P.

Under new labor conditions. Mast.ugl. 8 no.3:10 Mr '59.
(MIRA 13:4)

1. Predsedatel' Permskogo obkoma profsoyuza rabochikh ugol'noy
promyshlennosti (for Kobelev). 2. Zaveduyushchiy otdelom truda i
zarabotnoy platy Permskogo obkoma profsoyuza rabochikh ugol'noy
promyshlennost' (for Yevsikov).
(Kizel Basin--Miners) (Shift systems)

KOBELEV, N.; YEVSIKOV, P.

Applying progressive practices. Mast. ugl. no.10:18 O '59
(MIRA 13:3)
1. Predsedatel' Permskogo oblastnogo komiteta profsoyuza rabochikh
ugol'noy promyshlennosti (Kobelev). 2. Zaveduyushchiy otdelom
truda i zarabotnoy platy obkoma (for Yevsikov).
(Coal mines and mining--Labor productivity)

KOBELEV, N., kapitan

Determining the distance between ships. Rech. transp. 22 no.5:
53 My '63.   (MIRA 16:8)

(Ship handling)

KOBELEV, N.I.; KUSHEL'MAN, V.S.; ROZENFEL'D, S.Ye.

Present state of the manufacture of electric motor rotors and stators. Lit. proisv. no.6:39-43 Je '64.

(MIRA 18:5)

KOBELEV, P. P.   FA 20175

Defense, Military

Radio Amateur Movement Must Be Increased," Maj Gen
P. Kobelev, Air Force, Chairman, Central Council
of the Society for the Promotion of Self-Defense,
and Aero-Chemical Industry of the USSR, 3 pp

"Radio" No 1

Commends the amateur radio movement in Russia and
recommends that this movement be given every aid
possible in widening its scope of operations as much
possible. At present the Central Council of the
Society for the Promotion of Self-Defense, and Aero-
Chemical Industry of the USSR is adopting a set of

KOBELEV, P. P.

XX let Osoaviakhima. /20 years of the Society for Promotion of Defense of Aerochemical Construction/. (Za oboronu, 1947, no. 1-2, p. 4-5).

DLC: TL504.Z3

Neotlozhnye zadachi Osoaviakhima. /The urgent tasks of the Society for Promotion of Defense and Aerochemical Construction/. (Za oboronu, 1946, no. 21, p. 10-13, illus.

DLC: TL504.Z3

SO: Soviet Transportation and Communications, A Bibliography, Library of Congress Reference Department, Washington, 1952, Unclassified

√B

AUTHOR: Kobelev, S.

TITLE: The Machining of Components With the Aid of Milling Cutters[4] Designed by the Turner V.Ya. Karasev

PERIODICAL: Stalingr. prom-st' (Sovnarkhoz Stalingr. ekon. adm. r-na), 1959, No. 12, pp. 25-27

TEXT: The author presents investigation results of the end cutters, designed by V.Ya. Karasev, tested at the Kirov Plant. Considerable advantages of these cutters showed during the machining of the ΙΧ18Η9Τ (1Kh18N9T) grade of stainless steel, which raised the efficiency more than twice. Owing to an enlarged size of the chip grooves, the efficiency of machining non-ferrous metals is considerably increased. Thus the feeds during the tooling of copper reach a magnitude in the range of 500-900 mm/min, while aluminum alloys are machined with feeds of 1,000 mm/min. Milling of heat-treated components of high-strength alloyed

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√B

The Machining of Components With the Aid of Milling Cutters Designed by the Turner V.Ya. Karasev

steel grades showed that the efficiency increases by 30-40% without lowering the durability of the cutter. The new cutters are particularly recommended for the machining of grooves, surface finish comes up to the 6th class. Tables of the recommended cutting conditions are presented. There is 1 figure.

Translator's note: This is the full translation of the original Russian abstract.

B. I. M.

Card 2/2

TRET'YAKOV, A.V.; ORACHEV, A.V.; KOBELEV, V.

Review of the book by I.M.Meerovich and A.S.Filatov "Force measure-
ment during rolling." Stal' 24 no.7:638 Jl '64.

(MIRA 18:1)

KOBELEV, V.A.

DECEASED
c1961

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CHEMISTRY

TRET'YAKOV, A.V., kand. tekhn. nauk; TERENT'YEV, V.S., kand. tekhn. nauk;
KOBELEV, V.A., inzh.; POZINA, R.A., inzh.

Investigating strip tension of finishing machine coilers.
Sbor. st. NIITIAZHMASHa Uralmashzavoda no.6:260-274 '65.
(MIRA 18:11)

5.3300

26195
S/081/61/000/012/021/028
B103/B202

AUTHORS: Telegin, V. G., Kobelev, V. A., Mushenko, D. V.

TITLE: Alkylation of butylenes by means of isobutane in the
               presence of hydrogen fluoride

PERIODICAL: Referativnny zhurnal. Khimiya, no. 12, 1961, 524, abstract
               12M162 (Tr. Vses. n.-i. in-t neftekhim. protsessov, 1960,
               vyp. 3, 193-194)

TEXT: A mixture consisting of 44% of isobutylene and 56% of n-butylenes
was alkylated by means of commercial 90% isobutane in the presence of a
catalyst (98.8% HF + 1.2% SO_2), at a temperature of $30^{\circ}C$, a pressure of
10 at overpressure, and a volume ratio HF : hydrocarbons of 1 : 1. The
experiments showed that the alkylate yield increases from 177 to 193%
with an increase of the molar ratio isobutane : butylene from 4 : 1 to
10.8 : 1. In this case lighter alkylates are obtained with a low final
boiling point. This method warrants - as compared to the sulfuric-acid
alkylation of the same starting material - a higher yield (by about 10%)

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Alkylation of butylenes by means of ...   B103/B202

of aviation alkylate with an octane number higher by 1.5-2 points.
[Abstracter's note: Complete translation.]

Card 2/2

MASLYANSKIY, O.N.; BURSIAN, N.R.; BARKAN, S.A.; KOBELEV, V.A.; TELEGIN, V.G.

Catalytic isomerization of n-pentane. Izv.vys.ucheb.zav.;
khim.i khim.tekh.3 no.2:359-363 '60.   (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh
protsessov.
                          (Pentane)

KOBELEV, V. / SALOMONOVICH, A.

Wave Guides

Wave conductors. Radio no. 2, 1952. p. 19-23

   Discusses need for wave guides, propagation modes, and velocity and attenuation
of waves in wave guides. Rectangular wave guides 2.3 x 1 cm are used for transmitting
a frequency of 10,000 mc (3-cm). Theory of wave guides was developed by
L. I. Mandel'shtam, B. A. Vvedenskiy, A. O. Arenberg, S. M Rytov, P. Ye. Krasnushkin,
N. N. Malov, A. V. Tatarinov, and others.

KOBELEV, V. V. (Eng.), VIZUNYU, I. (Eng.) and BARDIZH, V. V. (Cand. in Tech. Sci.)

"Magnetic Operative Memory Device with Decoder Employing a "ound-Ribbon Magnetic Core"
a paper presented at the Conference on Methods of Development of Soviet Mathematical
Machine-Building and Instrument-Building, 12-17 March 1956.

Translation No. 596, 8 Oct 56

KOREIEV, V. V., and VIZUN, Yu. I.

"Programmed Access Magnetic Memory" 1958

publ by Inst. Exact Mechanics and Computing Techniques, Acad. Sci. USSR

KOBELEV, V. V. AND RADASHKEVICH, I. I.

"On Magnetic Polarity Reversal of Mn - Mg and Ni - Zn Ferrites." 1958.

publ by Inst. of Exact Mechanics and Computing Techniques, Acad. Sci. USSR

PHASE I BOOK EXPLOITATION   SOV/4404

Kobelev, V.V., and Yu. I. Vizun

Magnitnoye zapominayushcheye ustroystvo s programmnym upravleniyem (Magnetic
Memory Device With Program Control) Moscow, 1958. 17 p. 500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut tochnoy mekhaniki i
vychislitel'noy tekhniki.

No contributors mentioned.

PURPOSE: This booklet is intended for technical and scientific personnel dealing
with computers.

COVERAGE: The authors discuss the application of magnetic shift registers to a
special-purpose digital computer memory of small capacity and sequential address-
ing. It was determined that such an application would result in a considerable
simplification of circuits and in a reduction of components. Read out and write
in for such a memory can be performed with a transistorized magnetic shift

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Magnetic Memory Device With Program Control   SOV/4404

register. These principles were verified on an experimental device of 16 bits
50 memory locations. Technicians L.S. Yefimov, V.A. Chvyrev and R.M.
Krivchenkova participated in the construction and adjustment of the magnetic
storage. There are no references.

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AVAILABLE: Library of Congress (TK7872.M4K6)

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                                                             10-27-60

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66263

80V/181-1-7-19/21

AUTHORS: Kobelev, V. V., Madashkevich, I. I.

TITLE: On the Arbitrary Remagnetization of the Mn-Mg and Ni-Zn Ferrites

PERIODICAL: Fizika tverdogo tela, 1959, Vol. 1, Nr. 7, pp 1140-1146 (USSR)

ABSTRACT: The remagnetization (hysteresis $H \sim \pm 1$ Oe) of several toroidal
Mn-Mg and Ni-Zn ferrites of the types VT-1, K-28, VT-2,
3-475-P, 0-1000, 0-2000 are examined by experiments. The
chemical composition and the magnetic properties of the fer-
rites are displayed in table 1. The change of induction is measur-
ed by means of a ballistic galvanometer with an accuracy of 1%.
The switching in and off of the current by mechanic contacts,
causing breakdowns, was substituted by an electronic equipment
(circuit diagram, Fig 1) producing the necessary magnetising
currents for ridgeless current control. The ridgeless control of
the current is attained by connection of an integrating cell
with time constant of 0.01 sec. Before measurement the ferrites
were magnetically prepared, i.e. they were 3 - 6 times re-
magnetised by $H_{max} = 4 - 5 H_0$. The results obtained are dis-
played by tables as well as by diagrams and admit the following

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On the Arbitrary Remagnetisation of the Mn-Mg and Ni-Zn Ferrites

conclusions: 1) The magnetic state, prevailing in the examined ferrites after the end of the first current impulse is not altered by anew acting impulses of current with equal polarity. 2) The periodic influence of current impulses with alternating polarity causes the formation of a partial cycle of the hysteresis which is shifted in the direction of the initial state. The center of this cycle does not tend to move in the direction of the origin of the coordinates in the B-H plane. 3) The assumption of a remagnetisation of ferrites in layers offers the possibility of determining the trajectories of the described point in the interior of the maximum hysteresis loop. There are 6 figures, 3 tables, and 6 references, 2 of which are Soviet.

ASSOCIATION: Institut tochnoy mekhaniki i vychislitel'noy tekhniki. AN SSSR Moskva (Institute of Precision Mechanics and Computer Technology. AS USSR Moscow)

SUBMITTED: April 18, 1958
Card 2/2

KOBELEV, V.V.

[Oscillographic device for recording the hysteresis loop of flat ferromagnetic films] Ustanovka dlia ostsillografirovaniia petel' gisterezisa ploskikh ferromagnitnykh plenok. Moskva, In-t tochnoi mekhaniki i vychislitel'noi tekhniki Akad.nauk SSSR, 1960. 28 p.   (MIRA 14:2)

    (Magnetic measurements)   (Oscillograph)

KOBELEV, V.V.

[Oscillographic device for recording the hysteresis loop of small
ferrite cores] Ostsillograficheskaia ustanovka dlia sniatiia
petli gisteresisa malykh ferritovykh serdechnikov. Moskva, In-t
tochnoi mekhaniki i vychislitel'noi tekhniki Akad.nauk SSSR, 1960.
20 p.   (MIRA 14:2)
        (Cores (Electricity))   (Magnetic measurements)
                (Oscillograph)

PHASE I BOOK EXPLOITATION   SOV/5550

Akademiya Nauk SSSR. Laboratoriya magnitnykh elementov.

Magnitnyye elementy; sbornik statey (Magnetic Elements; Collection
   of Articles) Moscow, 1960. 313 p. 700 copies printed.

Sponsoring Agency: Institut tochnoy mekhaniki i vychislitel'noy
   tekhniki Akademii nauk SSSR.

No contributors mentioned.

PURPOSE: This collection of articles is intended for specialists
   concerned with digital computer technique.

COVERAGE: This collection of articles contains a part of the
   papers issued in 1956-1959 by the Laboratoriya magnitnykh ele-
   mentov Instituta tochnoy mekhaniki i vychislitel'noy tekhniki
   AN SSSR (Laboratory of Magnetic Elements of the Institute of
   Precision Mechanics and Computing Technique, AS USSR). They
   cover the following topics: polarity reversal of ferrite cores;
   static and pulse characteristics of ferrite cores with a rec-
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Magnetic Elements (Cont.)   SOV/5550

tangular hysteresis loop and the equipment used for determining
them; the operation of push-pull shift registers using ferrite
diode elements; several types of storage devices; new magnetic
components; transfluxors; and magnetic input drives. No per-
sonalities are mentioned. References accompany each article.

TABLE OF CONTENTS:

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Magnetic Elements   (Cont.)   SOV/5550

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YEFIMOV, I.A.; Prinimali uchastiye: KOBELEV, V.V.; NAZAROV, A.D.; KRIV-
CHENKOVA, R.N.

[Study of the remagnetization time of ferromagnetic film-type
elements] Issledovanie vremeni peremagnichivaniia ferromagnit-
nykh plenochnykh elementov. Moskva, In-t tochnoi mekhaniki i
vychislitel'noi tekhniki Akad. nauk SSSR, 1961. 23 p.
                                            (MIRA 14:8)
              (Ferrates) (Ferromagnetism)

KOBELEV, V.V.; KORSUNSKIY, A.A.; Prinimala uchastiye KRIVCHENKOVA, R.N.

[Domain structure of uniaxial ferromagnetic films] Domennaia
struktura odnoosnykh ferromagnitnykh plenok. Moskva, In-t tekh-
noi mekhaniki i vychislitel'noi tekhniki Akad. nauk SSSR, 1961.
29 p.   (MIRA 14:8)
        (Ferromagnetism)   (Magnetic materials)

S/721/61/000/000/00?/006

AUTHOR: Kobelev, V. V.

TITLE: The hysteresis loops of monoaxial ferromagnetic films.

SOURCE: Akademiya nauk SSSR. Institut tochnoy mekhaniki i vychislitel'noy
            tekhniki. Magnitinyye elementy ustroystva vychislitel'noy tekhniki,
            sbornik statey. Moscow, 1961, 56-84.

TEXT: The paper reports the results of an experimental investigation of
thicknesswise single-domain layers termed "films" in the sense of C. Kittel's find-
ing (Phys. Rev., v. 70, 1946, 965) that with ferromagnetic layers of a thickness
smaller than a certain "critical" value an optimal state exists in which the magnet-
ization vectors are parallel to the surface of the layer. It is not implied that the
magnetization vector must be parallel over the entire area of the film, that is, that
the film must be single-domained over its entire area. For example, a film is in a
multi-domain state after demagnetization by AC. Two processes occur during
change of magnetic state (magnetic polarity reversal - MPR): A reversal process
and a process of the formation and growth of domains. The speeds of these 2 pro-
cesses are different: Polarity reversals occur over a time of nanoseconds, whereas
the displacement of boundaries requires a time 2-4 orders higher. Inasmuch as the
most effective film would be one in which the processes of domain formation would
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The hysteresis loops of monoaxial S/721/61/000/000/003/006

be inhibited as much as possible and MPR would occur only by means of a reversal
of the magnetization, the paper examines the problem of the behavior of an ideal one-
domain film in external fields. It is concluded that all the variously-shaped hystere-
sis loops of monoaxial film elements can be described in terms of the rotation (re-
versal) model. Equations are adduced for the various different classes of hysteresis
loops. The film elements tested were obtained by precipitation on an amorphous base
which exhibited monoaxial anisotropy. The best concurrence between experiment and
theory is found in specimens having similar values of the coercive force for boundary
displacement and for rotation. The experimental investigation of processes of bound-
ary displacement can be shown most clearly and most conveniently by means of the
magnetization hodograph. In all instances of MPR of monoaxial film elements, do-
main formation was observed. The incidence of boundary-displacement processes is
minimal in an external field close to the "heavy" direction of magnetization, that is,
the direction of maximum energy in the element. In the MPR of a film element exactly
along the "light" (that is, the direction of minimum energy in the element) and exactly
along the "heavy" direction of magnetization, no processes of rotation of the magnet-
ic moment of the specimens were observed. The coercive force can be readily meas-
ured by the rotation method, namely, by directing upon a monoaxial film element a
constant and a variable field directed at an angle of 45° to the "light" axis and by alter-
ing the constant field until the characteristic "rectification" of one of the branches of

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S/721/61/000/000/004/006

AUTHORS: Kobelev, V.V., Korsunskiy, A.A.

TITLE: The domain structure of monoaxial ferromagnetic films.

SOURCE: Akademiya nauk SSSR. Institut tochnoy mekhaniki i vychislitel'noy
          tekhniki. Magnitnyye elementy ustroystv vychislitel'noy tekhniki;
          sbornik statey. Moscow, 1961, 85-96.

TEXT: The paper reports the result of an experimental investigation in which
the observation of the magnetic structure of ferromagnetic films was performed by
the use of the magneto-optical Kerr effect, that is, the rotation of the polarization
plane of light that is polarized in the plane of impingement or perpendicular thereto
during its impingement in the direction of the magnetic moment (the meridional
Kerr effect). The direction of the rotation is determined by the direction of the
magnetic moment, whereas the magnitude of the angle of rotation is substantially
dependent on the magnetic moment itself. Thus it is possible to use a polarizing
element to extinguish almost completely light reflected from one region of a ferro-
magnetic film (for a given direction of the magnetic moment); because of the small-
ness of the effect there remains a fairly small but noticeable portion of the light re-
flected from another region (with a different magnetic moment). Thus the reflection

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The domain structure of monoaxial ...

with dark and bright areas. This method is potentially inertia-free (by contrast with the powder method) and permits the observation of the domain structure of a large specimen, but practically fails to provide any means for enlarging the image. The optical equipment used is similar to that described by Fowler, C.A., and E.M. Fryer, Phys. Rev., v. 94, 1954, 52. The light source used was a krypton-xenon high-pressure light ГСВД 120 (GSVD 120). The method of the making of the ferro-magnetic film element by vacuum spraying the ferromagnetic material onto a heated clean glass base placed in a magnetic field parallel to the plane of the base is de-scribed. The spraying vacuum was 3·10⁻5 mm Hg, the base T 300°C, the magnetic field 50 ϕ. The alloys sprayed were Permalloys with [Ni] from 80 to 83%. The domain structure of a monoaxial film specimen during magnetic polarity reversal (MPR) along the low-energy ("light") axis and along the high-energy ("heavy") axis are described and illustrated by photographs. This is supplemented by a description and photographs of the bright- and dark-area patterns revealing the domain structure during MPR by a field directed at an angle to the "light" axis and by a field that is close to, but not coincident with, the "heavy" axis. There are 12 figures and 8 references (2 German and 6 English-language).

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S/721/61/000/000/006/006

AUTHOR: Kobelev, V. V.

TITLE: Equipment for the oscillographic recording of hysteresis loops of planar ferromagnetic films.

SOURCE: Akademiya nauk SSSR. Institut tochnoy mekhaniki i vychislitel'noy tekhniki. Magnitnyye elementy ustroystv vychislitel'noy tekhniki; sbornik statey. Moscow, 1961, 131-146.

TEXT: The paper comprises a review of the problems encountered in the record-
ing of the hysteresis loop (HL) of film-type ferromagnetic elements, specifies the re-
quirements to be imposed on an oscillographic equipment designed for that purpose,
and describes a specialized equipment, its operation, and its performance. The film-
holder, the solenoid (130-mm long, 45 coils, 40-mm diam), the setup employed for
the recording of the HL of one of the film elements of a collective matrix, the
method employed in identifying the processes of rotation (reversal) and displacement,
the general circuitry of the equipment, the design and problems encountered with in-
tegrating amplifiers, the circuitry and method employed in the imposition of constant
magnetic fields, and the measurement of the coercive force and the residual induction
of the film elements are described. The measurement of the residual induction is

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Equipment for the oscillographic recording S/721/61/000/000/006/006

preferably performed by the method of the core standard, in which the core standard
is placed at the input of the integrating amplifier in lieu of the solenoid and the film-
holder assemply, whereupon the sensitivity of the integrating amplifier in maxwells
per mm y-wise displacement of the beam on the oscillograph screen is determined.
Thereupon a measurement of the magnitude of the HL of the film element, upon re-
placement of the solenoid and the film-holder block, is determined, whence - knowing
the number of coils - the residual magnetic flux of the film is readily determined. To
avoid the many complications involved in the measurement of the coercive force,
this measurement is performed by means of the establishment of a constant field
directed along the axis of the solenoid. The intensity of the field is measured with
great accuracy by a ballistic galvanometer; the field displaces the hysteresis loop,
and the magnitude of the displacement permits one to calibrate the amplifier along
the horizontal axis of the oscillograph in ϕ/mm. The application of the necessary
"phase" correction of the amplifier for the x axis is described. General character-
istics of the equipment: Operating frequency 1 kcps; max. amplitude of the variable
field 70 ϕ; max. sensitivity with 1-cm-diam specimen in thickness 50 Å, in flux
0.005 maxwell; number of windings of the coil 100; magnitude of the magnetic flux
permitting the photographing of the loop 0.05 maxwell. There are 14 figures and 6
references (1 Russian-language Soviet, 5 English-language).

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25503

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S/048/61/025/005/017/024
B117/B201

AUTHORS: Kobelev, V. V., and Korsunskiy, A. A.

TITLE: Domain structure of uniaxial ferromagnetic films

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
             v. 25, no. 5, 1961, 628-633

TEXT: The present investigation was the subject of a lecture delivered at
a symposium on thin ferromagnetic films (Krasnoyarsk, July 4 to 7, 1960).
The magnetic structure of ferromagnetic films was studied with the aid of
the magnetooptical Kerr effect. The optics of the device used in the
investigation was similar to that described in Ref. 2 (Fowler C. A.,
Fryer E. M., Phys. Rev., 94, 52 (1954)) (Fig. 1) The light source was a
krypton-xenon lamp of the type ГСВБ-120 (GSVD-120). The polarizers were
gyropatite polarizing foils. The homogeneous magnetic field was brought
about by means of two pairs of rectangular coils oriented in perpendicular
to each other. The field H_z lying in the plane of beam incidence was
produced by one pair, and the perpendicular field H_x by the other. The
specimens were produced by sputtering ferromagnetic material in vacuum

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$(3 \cdot 10^{-5}$ mm Hg) onto a polished glass backing with a temperature of 300°C; the magnetic field was 50 oersteds. Permalloy-type alloys with a nickel content between 80 and 83 % were used. Nine specimens 1 cm in diameter each were sputtered simultaneously. The backings were 18·18 mm large and 0.2 mm thick cover glasses. The specimens produced in this way displayed a distinct uniaxial anisotropy. A domain structure of a fairly uniform type generally appears in such specimens during magnetic reversal. The magnetic reversal of specimen no. 315 (83 % Ni, 17 % Fe) 1400-Å thick was examined as an example. Due to an exiguous amount of incident light, the domain structure is practically not detectable under visual observation. A highly sensitive film (180-250 ГОСТ (GOST) units) was therefore used for taking the pictures with an exposure time of 1-3 minutes. In the positive field of 0.1 oe the first domains first appear in the form of bright wedges at the lower and upper edge of the film element. With growing field they first become slowly larger, then quickly diffuse into one another, and the new phase covers almost the whole surface. Once the specimen is almost fully saturated, nuclei of the former phase are still left over at the edges. Nuclei of the new phase appear in all cases, without exception, at the film edge, where the demagnetizing field has its maximum value. The

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hysteresis loop relative to a number of pictures is presented in Fig. 3. The second part, which characterizes the magnetic reversal of the specimen on the passage from the negative to the positive fields, was constructed considering symmetry, and drawn with the aid of a thin line. During magnetic reversal with a field oriented along the axis of easiest magnetizing, and when at the same time applying a field along the axis of heavy magnetizing, domains appear, whose structure differs little from the previous one. Still, there are some particular aspects here: the stronger the field H_x oriented in the direction of heavy magnetizing, the smaller will be the parts of the field H_z in which the domains arise and expand. The field H_z which corresponds to the end of magnetic reversal drops more slowly. The first wedges are inclined toward the direction of the outer field. This inclination is reduced with a growth of the domains, and near the specimen center the boundaries run about parallel to the axis of easiest magnetizing. The larger H_x, the narrower and longer the first wedges will be. Their number rises and at the same time it can be observed that the boundaries deviate from the axis of easiest magnetizing not in the direction of the field but in the reverse direction. A fine domain structure then appears, the walls of which are inclined in

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different directions. The case of a magnetically uniaxial film which is divided in domains and which is placed in an arbitrary outer field is examined more closely. A scheme illustrating the inclination of the boundaries in a magnetically uniaxial film is presented by Fig. 8. It is easily found that the domain structure can exist only in the presence of such fields as correspond to the points within the astroid. There are two stable states in magnetization. The boundary is assumed to shift in the fields h_x and h_y. This corresponds to point P within the astroid.

The direction of magnetizations $\vec{I}_1$ and $\vec{I}_2$ is characterized by the acute angles α_1 and α_2. The angle $\Delta\alpha$ between the boundary and the axis of easiest magnetizing is found to be equal to $\gamma - 90°$. $\Delta\alpha = (\alpha_1 - \alpha_2)/2$. Even without having analytically precise formulas for α_1 and α_2 it is still clear that $\Delta\alpha$ can assume no high values. The extreme values of $\Delta\alpha$ can be easily found within the range

$$h_x^{2/3} - h_z^{2/3} \leq 1; \quad h_x \geq 0; \quad h_z \geq 0 \quad (11)$$

by the method of undefined Lagrange factors. A system of equations is

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Domain struqture of uniaxial...

found by this method, which has a single trivial solution::
$\alpha_1 = \alpha_2 = h_x = h_z = 0$. This corresponds to the salient point. There is no
maximum nor minimum within the region (11). As a consequence, the
maximum of $\Delta\alpha$ is at the boundary of this region. This maximum can be
easily found if h_x and h_z are expressed by α_2: $h_z = \cos^3\alpha_2$; $h_x = \sin^3\alpha_2$.
The final formula reads:
$$\sin(\alpha_1 - \alpha_2) = (1/2)\sin 2\alpha_2' \qquad (14).$$
The argument at the left-hand side is $2\Delta\alpha$. Its maximum can be found by
differentiating formula (14) with respect to α_2. As a result, $\alpha_2 = 45^\circ$
and $\Delta\alpha_{max} = 15^\circ$ (15). The observed inclination of the domain walls confirms
the idea that in first approximation the magnetic rotations within the
domains are independent of the existence and of the shift of the
boundaries between the domains. There are 8 figures and 8 non-Soviet-bloc
references. The four references to English-language publications read as
follows: Williams B., Sherwood R., J. Appl. Phys., 28, 548 (1957);
Prutton M., Philos. Mag., 4, 1063 (1959) and Bitt. J. Appl. Phys. 11, -

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25803   S/048/61/025/005/017/024
B117/B201

Domain structure of uniaxial...

335 (1960); Proebster W. E., Nathfessel S., Kinberg C. O., UNESCO (NS)
ICIP/K 2.

ASSOCIATION: Institut tochnoy mekhaniki i vychislitel'noy tekhniki
Akademii nauk SSSR (Institute of Precision Mechanics and
Computing Technique of the Academy of Sciences USSR).

Legend to Fig. 1: Optics of
a device for observing the
domain structure of ferro-
magnetic films. 1, light
source; 2, condenser lens;
3, diaphragm; 4, collimator
lens; 5, interference light
filter; 6, polarizer; 7,
specimen; 8, analyzer;
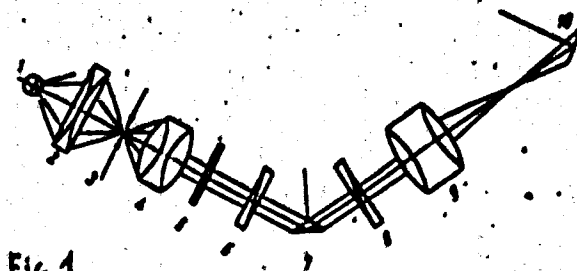9, objective; 10, projection
screen.

Fig. 1

Card 6/7

KOBELEV, V.V.; KORSUNSKIY, A.A.

Domain structure of uniaxial ferromagnetic films. Izv.AN SSSR.Ser.
fiz. 25 no.5:628-633 My '61.   (MIRA 14:5)

1. Institut tochnoy mekhaniki i vychislitel'noy tekhniki Akademii
nauk SSSR.
       (Metallic films—Magnetic properties) (Magnetooptics)

S/126/62/013/003/021/023
E039/E135

AUTHOR: Kobelev, V.V.

TITLE: A new method for measuring anisotropy in
             ferromagnetic films

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.3, 1962,
             467-470

TEXT: When the anisotropic constant K is less than
10^3 ergs/cm^3 its measurement becomes difficult by the usual
methods based on ferromagnetic resonance. In the case of thin
films of ferromagnetic materials condensed under vacuum in a
magnetic field the anisotropy is small and is usually determined
by measuring hysteresis loops in a direction at right angles to
the magnetic axis. In the ideal uniaxial film the two branches
of the hysteresis loop merge into one line, then $H_k = \pm 2K/I$,
where I is the saturated magnetisation.
For weakly anisotropic films this method gives very inaccurate
results. In this paper is described a method which enables
anisotropic constants of 10 ergs/cm^3 to be measured, and at
$K = 10^3$ erg/cm^3 it is possible to obtain an accuracy of about
Card 1/2

S/120/62/000/005/026/036
E192/E382

AUTHORS: Kobelev, V.V. and Korsunskiy, A.A.

TITLE: A simple null indicator for the magnetic field of
            a ferromagnetic film

PERIODICAL: Pribory i tekhnika eksperimenta, no. 5, 1962,
               154 - 156

TEXT: A ferromagnetic film having a single-axis anisotropy
remains in an unstable state when it is magnetized along the
"difficult" axis. When a weak external field parallel to the
"easy" axis is applied, the ferrogmagnetic film assumes one of
two possible stable states. The instrument described is based
on this principle. This is illustrated in Fig. 2. A 2 500 Å
thick film is made of 82% Ni and 18% Fe and deposited onto a
glass base 2 (a glass plate 18 x 18 mm^2). The magnitude of
the residual magnetic flux of the film is 0.2 maxwell. An
alternating magnetic field of a frequency which can be varied
from 1 - 10 kc/s is applied along the axis of difficult
magnetization by means of a flat coil W_1 , consisting of 25 turns
of 1 mm wire. The signal coil W_2 (see Fig. 2) consists of

Card 1/3 2

KOBELEV, V.V.

[Hysteresis loops of uniaxial ferromagnetic films]Petli
gisteresisa odnoosnykh ferromagnitnykh plenok. Moskva, ITM
i VT AN SSSR, 1961. 63 p.   (MIRA 15:9)
            (Ferrates) (Hysteresis loop)
         (Electronic calculating machines)

KOBELEV, V.V.

Equipment for the observation of hysteresis loops in magnetic elements with an extremely low residual flux. Trudy inst. Kom;stand.mer 1 izm. prib no.64:289-299 '62. (MIRA 16:5)
(Magnetic materials)(Magnetic measurements--Equipment and supplies)

L 9789-66   EWT(m)/T   DJ

AC NR: AP5028526   SOURCE CODE: UR/0286/65/000/020/0117/0117

AUTHORS: Bocherov, A. A.; Kobelev, V. V.; Nikanorov, Ye. I.; Mel'nikov, V. P.

ORG: none

TITLE: [Pneumatically or hydraulically driven manipulator]   Class 49, No. 173803

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 117

TOPIC TAGS: pneumatic device, hydraulic device, material handling

ABSTRACT: This Author Certificate presents a pneumatically or hydraulically driven manipulator which includes a gripping head with a clamping device (see Fig. 1). To decrease the drive operating range while retaining sufficient clamping force, the drive of the clamping jaws contains a floating power cylinder one end of which is hinged to one pair of a four-bar linkage. The moving part of the power cylinder is connected to the other pair of the four-bar linkage which in turn

Card 1/2   UDC: 621.733.5.077
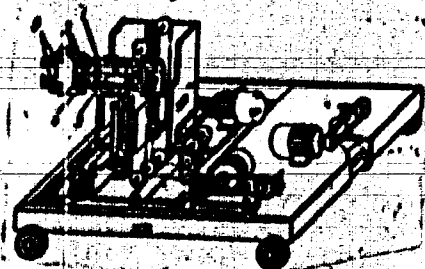
L 9789-66

ACC NR: AP5028526

Fig. 1. 1 - Floating cylinder;
2 - 2 bars of four-bar linkage;
3 - rod; 4 - other 2 bars of four-
bar linkage; 5 - clamping jaws.

is connected to the jaws of the clamping head. Orig. art. has: 1 figure.

SUB CODE: 13/   SUBM DATE: 28Dec62

Card 2/2

ACC NR: AT7007642

current must be at least 350 ma. A block diagram of the memory and associated units is given and their functions described. Debugging and routine memory checkout schedules are given. Orig. art. has: 5 figures.

[WA-81]
[BD]

SUB CODE: 09/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001

Card 2/2

KOBELEV, Yu.K.

Corn as a crop preceding winter crops. Zemledelie 27 no.5:52-55
My '65.   (MIRA 18:6)

1. Zherebkovskaya opytnaya stantsiya Vsesoyuznogo nauchno-issle-
dovatel'skogo instituta kukuruzy.

KOBELEVA, K.

USSR/Farm Animals. Horses.

Abs Jour: Ref Zhur-Biol., No 20, 1958, 92543.

Author : Kobeleva, K.
Inst   :
Title   : Maternal Instinct in Horses.

Orig Pub: Konevodstvo, 1957, No 11, 21-23.

Abstract: Investigations were conducted at the stud farms
          in Moscow, Tersk and Kabardinsk. When living in
          herds, 77% of the mares a few hours or days before
          giving birth approach other pregnant mares, and in
          50% of the cases they give birth at the same time.
          The foaling (in 70% of cases) takes place at night.
          After foaling the mares display an active-defensive
          reaction, especially when the colt is asleep, and

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USSR/Farm Animals. Horses.

Abs Jour: Ref Zhur-Biol., No 20, 1958, 92543.

also a positive reaction toward the colt in the
form of licking it with their lips and neighing
softly. The mare touches the lips of the foal with
her own lips and this activates the sucking reflex
in the colt.

Card   : 2/2

KOBELEVA, N.I.

Relation between the growth of an entire function of two complex variables and the distribution of singularities of the function associated with it. Izv. vys.ucheb. zav.; mat. no.3:59-66 '62.

(MIRA 15:9)

1. Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo.
(Functions of complex variables)

CHERNOMORDIK, A.B., KOBELEVA, P.S.

Inhibition of drug resistance in dysentery bacilli during the combined activity of antibiotics. Zhur.mikrobiol.epid. i immun. 29 no.7:24-27 Jl '58
(MIRA 11:8)

1. Iz Dnepropetrovskogo instituta epidemiologii i mikrobiologii.
(SHIGELLA DYSENTERIAE, effect of drugs on,
antibiotics, resits. in combined eff. of various drugs
(Rus))
(ANTIBIOTICS, effects,
on Shigella dysenteriae, resist. in combined admin. (Rus))

CHERNOMORDIK, A.B.; KOBELEVA, P.S.

Mode of action of certain trace elements on the development of resistance to streptomycin. Antibiotiki 4 no.5:96-98 S-O '59.   (MIRA 12:3)

1. Dnepropetrovskiy institut epidemiologii, mikrobiologii i gigireny.
    (STREPTOMYCIN pharmacol.)
    (TRACE ELEMENTS pharmacol.)

17(2,12)

AUTHORS: Chernomordik, A.B., Kobeleva, P.S., Ponomareva, V.O., and Kovalenko, A.V.

TITLE: The Combined Action of Antibiotics. Author's Summary.

PERIODICAL: Zhurnal mikrobiologii, epidemiologii i immunobiologii, 1959, Nr 6, 30
              pp 118-119 (USSR)

AUTHOR: Tests were run to study the combined action of antibiotics and also of
              antibiotics in various salts on microbes, particularly on the development
              of their resistance to antibiotics. In the first test it was found that
              magnesium sulfide and magnesium chloride accelerated the appearance of
              microbal variants resistant to streptomycin by as much as 2-3 times,
              whereas small amounts of cobalt sulfide or cobalt chloride had the reverse
              effect. It was further found that this action is inherent in the magnesium
              and cobalt ions and not in the SO_4 or Cl groups. Moreover, these substances
              had no effect on the rate of appearance of strains resistant to synthomycin.
              The second series of tests investigated the effects of combinations of any
              two antibiotics on Pseudomonas aeruginosa, pathogenic Escherichia coli
              strains, Shigella flexneri and Proteus. The antibiotics used were:
              streptomycin, polymixin, colimycin, terramycin, synthomycin, ecmoline and
Card 1/2   penicillin. The tests showed that a trace of polymixin in a subbacterio-

The Combined Action of Antibiotics. Author's Summary.   SOV/16-59-6-25/46

static concentration of 1:8 decreased the antimicrobic action of colimycin by about twice. The reverse sequence of this did not take place. Synthomycin had the same antagonistic effect on streptomycin. Neither streptomycin nor colimycin had an antagonistic effect on synthomycin activity. None of the other combinations of antibiotics had either an antagonistic or a synergic effect on Pseudomonas aeruginosa - simply a summation one. No combinations of biomycin, terramycin, colimycin, polymixin, streptomycin, sanazin, synthomycin or furacillin had either an antagonistic or a synergic effect on the Escherichia coli or Shigella flexneri strains.

ASSOCIATION: Dnepropetrovskiy institut epidemiologii i mikrobiologii (Dnepropetrovsk Institute of Epidemiology and Microbiology)

SUBMITTED: February 8, 1958

Card 2/2

CHERNOMORDIK, A.B.; KOVALENKO, A.D.; POMOMAREVA, V.O.; KOBELEVA, P.S.

Antibiotic-resistant coli bacteria in the prevention of intestinal
dysbacteriosis. Zhur. mikrobiol. epid. i immun. 31 no.7:73-76
Jl '60.
                                              (MIRA 13:9)

1. Is Dnepropetrovskogo instituta epidemiologii i mikrobiologii.
        (ESCHERICHIA COLI)   (INTESTINES—MICROBIOLOGY)
                (ANTIBIOTICS)

CHERNOMORDIK, A.B.; KOVALENKO, A.D.; PONOMAREVA, V.G.; KOBELEVA, P.Ye.

Comparative study of the effect of certain antimicrobial preparations on pathogenic bacteria. Antibiotiki 5 no.4:96-97 Jl-Ag '60.
(MIRA 13:9)

1. Dnepropetrovskiy institut epidemiologii i mikrobiologii.
(ANTIBIOTICS)   (FURAN)
(BACTERIA, EFFECT OF DRUGS ON)

SOV/ 93-58-10-7/19

11(0)

AUTHOR: Zoloyev, T.M., Kobeleva, V.A., and Sheldybayeva, N.A.

TITLE: The Rate and Ampleness of Output of the Oil Deposits
               (Tempy i polnota vyrabotki zalezhey nefti)

PERIODICAL: Neftyanoye khozyaystvo, 1958, Nr 10, pp 31-35 (USSR)

ABSTRACT: The Tuymazy Oilfield was discovered in 1944 and the initial estimate
    of petroleum reserves in the D_I and D_{II} formations was made in 1949. A
    second estimate was made by the VNII Institute in 1954 and a third by the
    Tuymazaneft' NPU in 1957. The capacity of the D_I and D_{II} formations are given

    in Figs. 1-2 and the production rates in relation to the initial and current
    estimates of reserves are given in Tables 1-3. The data show that the actual
    production coefficient for the two formations is 0.43 instead of 0.58 as
    determined by the initial estimate of the reserves. The low production in
    relation to the reserves presents a serious problem for the further develop-
    ment of the large Devonian oilfields, but the scientific and research organiz-
    ations do not bother to analyze the industrial data on the D_I and D_{II} form-

    ations. There are 2 figures and 3 tables.

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